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by

JinAh Lee

2013

Master's Design Study

In fulfillment of requirements for the degree
of Master of Science in Urban Design

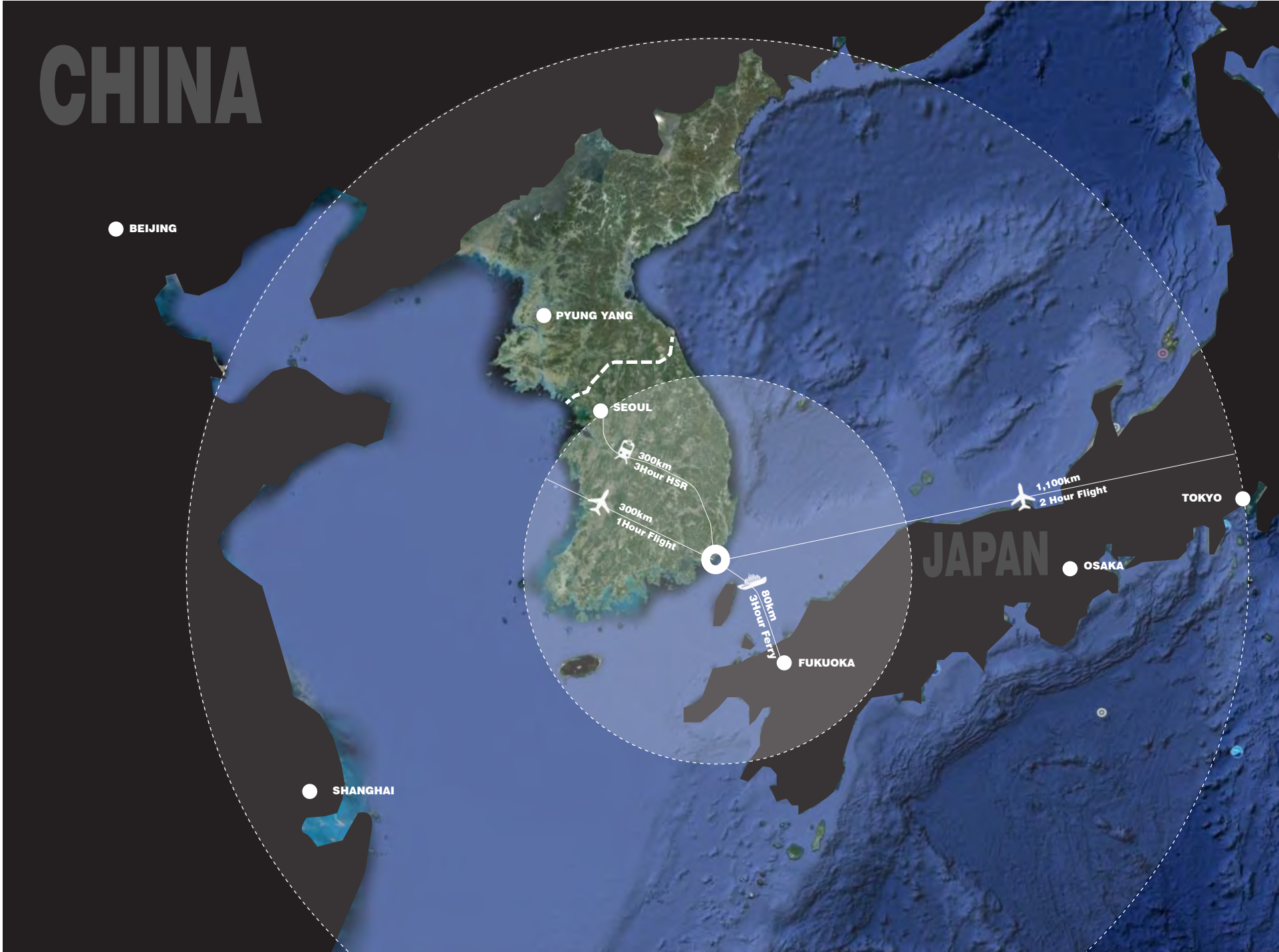
Active Harbor City revitalization; Stitching existing urban fabric and port redevelopments in Busan, Korea

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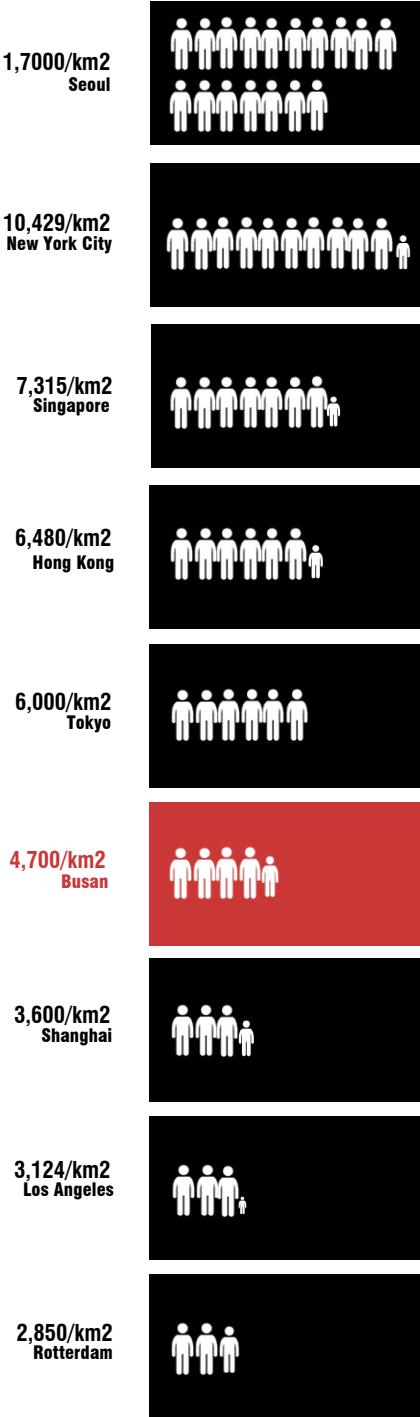
Faculty Supervisors : Dean Almy, Barbara Hoidn
The University of Texas at Austin | 2013 Spring semester

Active Harbor City revitalization;
Stitching existing urban fabric and port redevelopments in Busan, Korea

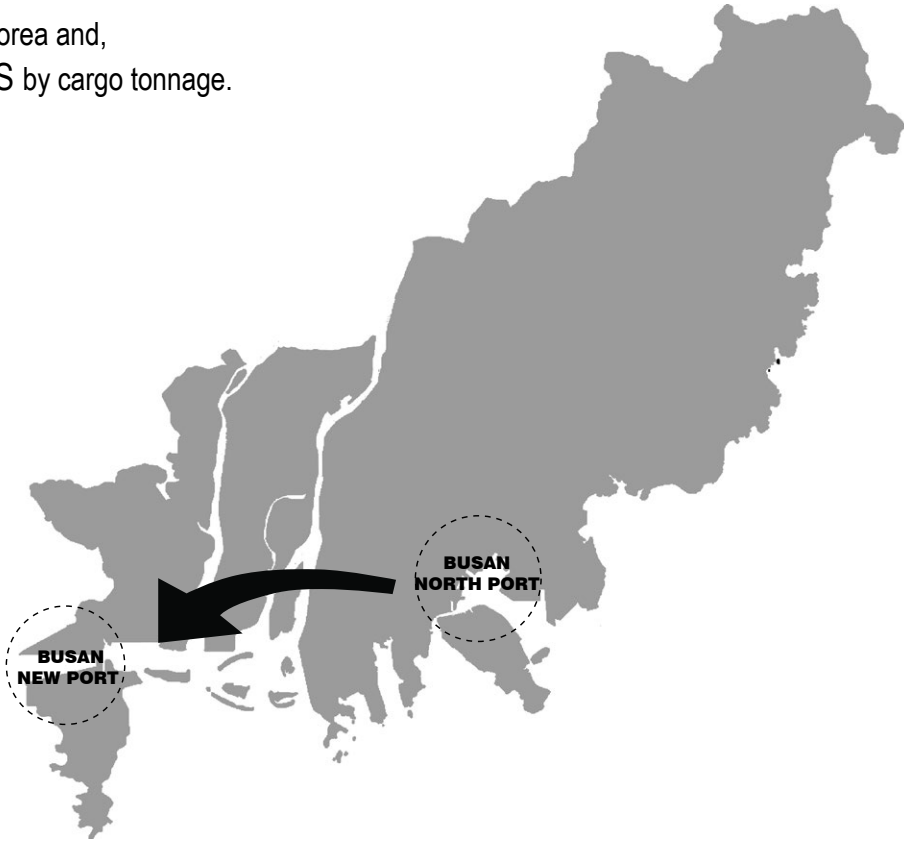
This study is to propose spatial interventions to activate port areas in the harbor city, Busan. Many ports including Busan North Port redevelopment are expected to redevelop soon. Most of them will be changed existing industrial ports to waterfront facility. However, these developments do not consider existing urban context. To resolve this problem, I suggest infrastructures and public spaces between existing urban structure and expected developments. This plan will increase accessibility to waterfront area and provide active public spaces. Especially, this study focuses on Busan North Port area. I propose an athletic park for local people and four pedestrian bridges to connect between city downtown and Busan North Port.



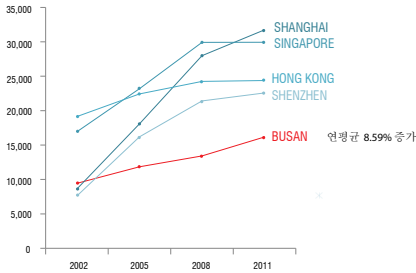
Busan
Area : 736.5 km² (294.8 sq miles)
Population: 3,614,950
Density : 4,700/km² (12,000/ sq miles)



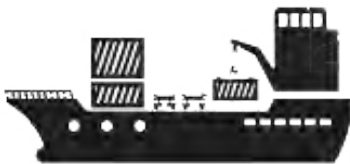
BUSAN is
the largest **PORT CITY** in South Korea and,
the world's fifth busiest **SEAPORTS** by cargo tonnage.
However, the problems are ...



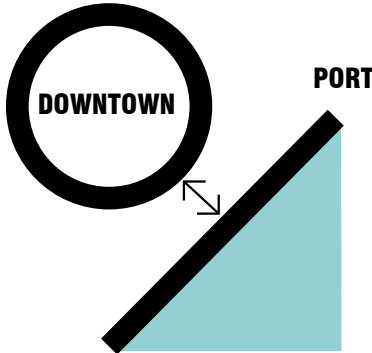
CONTAINER TRAFFIC INCREASE,
CHINA'S NEW PORTS GROWTH



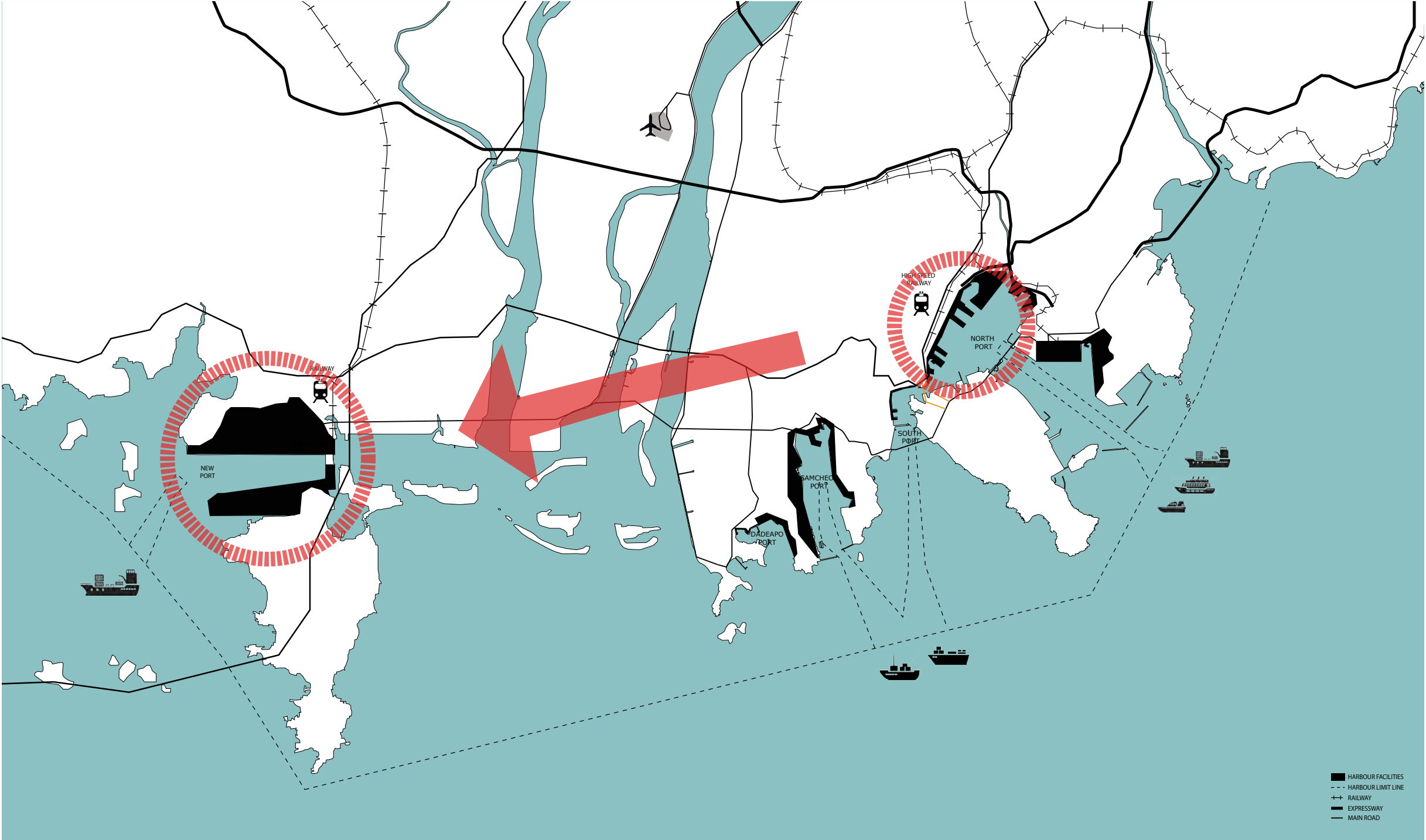
LARGE CONTAINER SHIPS
INCREASE



NO POSSIBILITY TO EXPAND



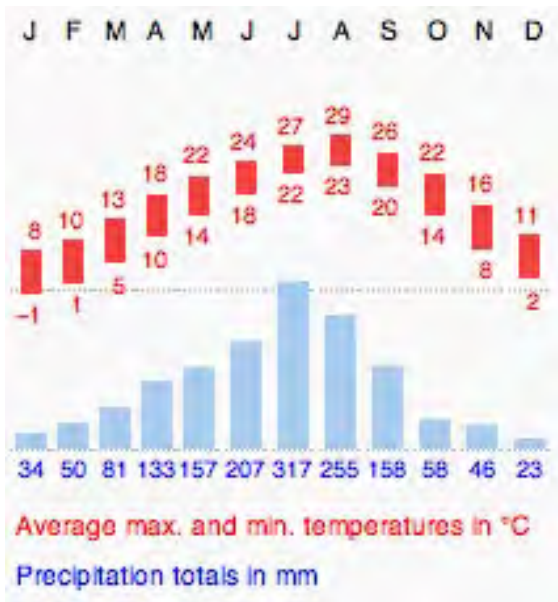
WORLD'S BUSIEST CONTAINER PORT



Temperature and Precipitation

Busan has a humid subtropical climate. The temperautre is not extremely high or low tempera-
tures. The city may experience typhoons during summer. On September 15, 1959, Super Typhoon
Sarah passed by the coast of the city and caused catastrophic damage. An unusually severe
storm on September 12, 2003, Typhoon Maemi, also caused damage to ships and buildings and
resulted in over 48 fatalities.

source : <http://en.wikipedia.org/wiki/Busan>

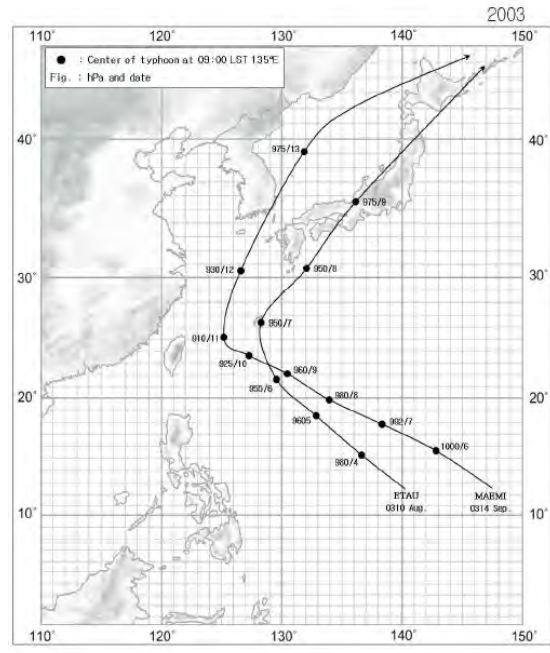
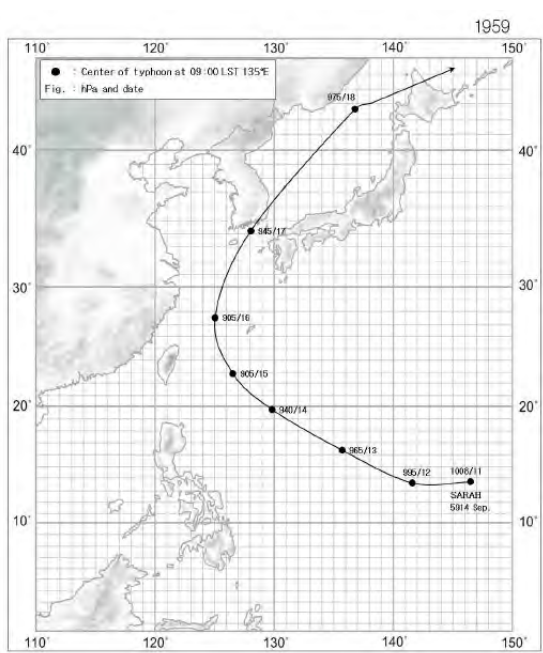
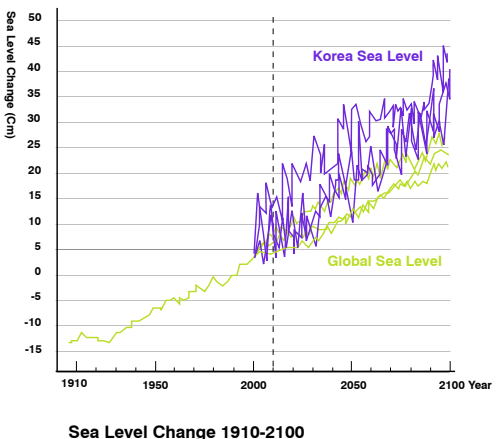
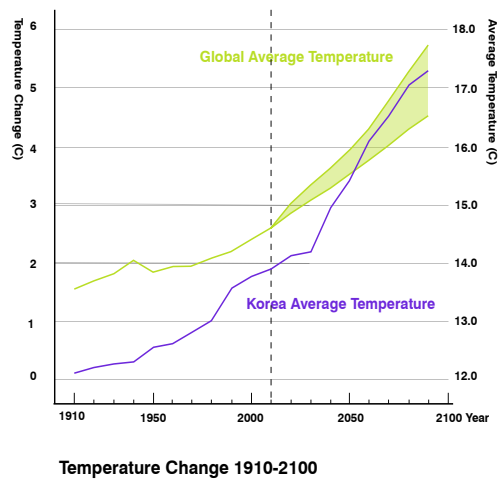


Global warming

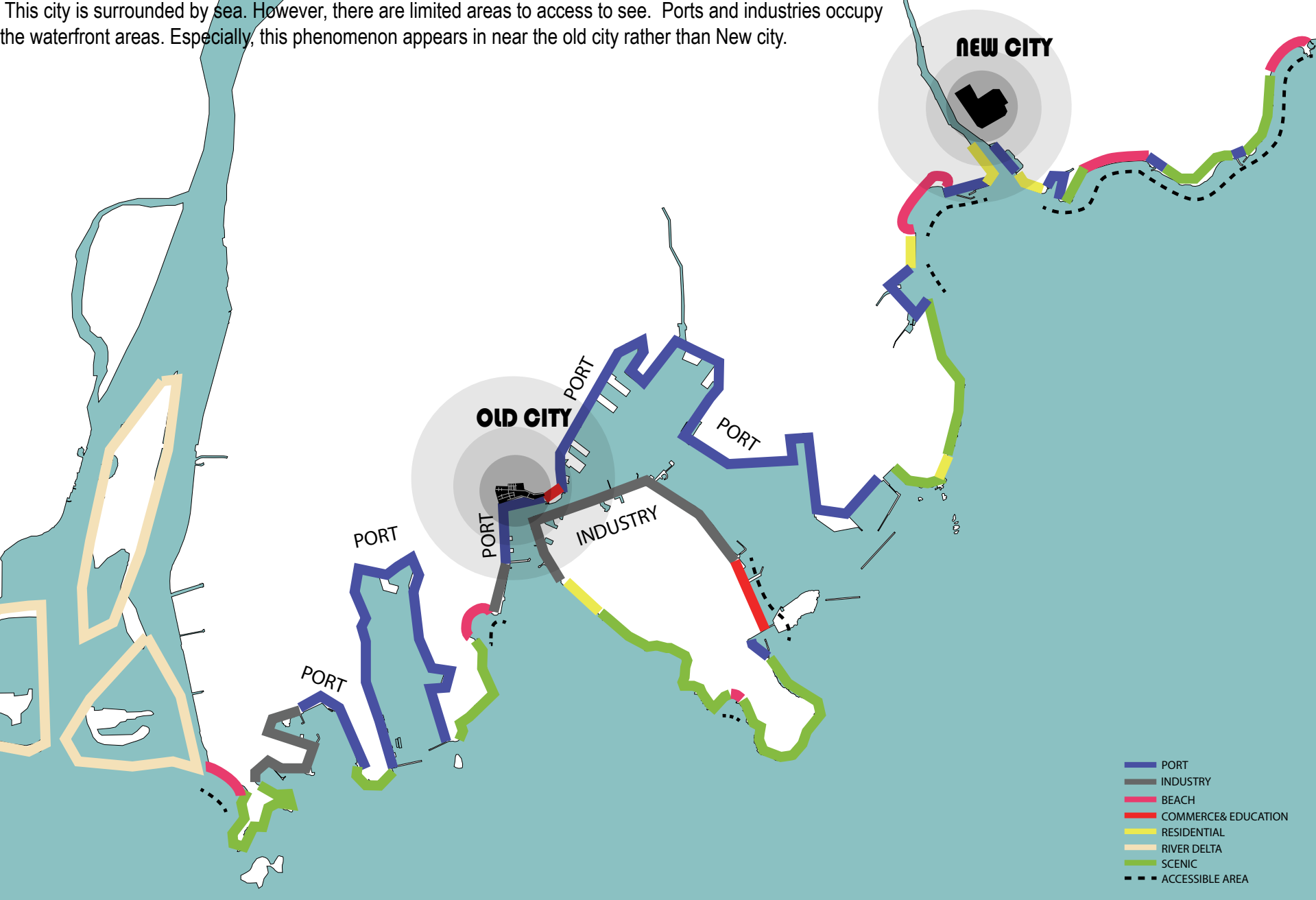
Global warming is the rise in the average temperature of Earth's atmosphere and oceans since the late 19th century and its projected continuation. Since the early 20th century, Earth's mean surface temperature has increased by about 0.8 °C (1.4 °F), with about two-thirds of the increase occurring since 1980. The effects of an increase in global temperature include a rise in sea levels and a change in the amount and pattern of pre-
cipitation.(12)The Earth's average surface temperature rose by 0.74±0.18 °C over the period 1910–2005. The rate of warming over the last half of that period was almost double that for the period as a whole. Source http://en.wikipedia.org/wiki/Global_warming

According to a research, global average temperature will increase about 2.5 °C. Korea average temperature will rise by 3 °C. It is higher than global average temperature rise. Not only that, Korean sea level change will be higher than Global sea level change.

Korea Marine Environment Management Corporation simulated sea level rise in Busan. As a result of the simulation, the worst scenario is that the sea level will increase 50cm by 2100. The red filled are will be inundated. If sea level rises 1m, the dimmed red area will be flooded. However, there is almost no possibility to happen.



WATER FRONT CHARACTER



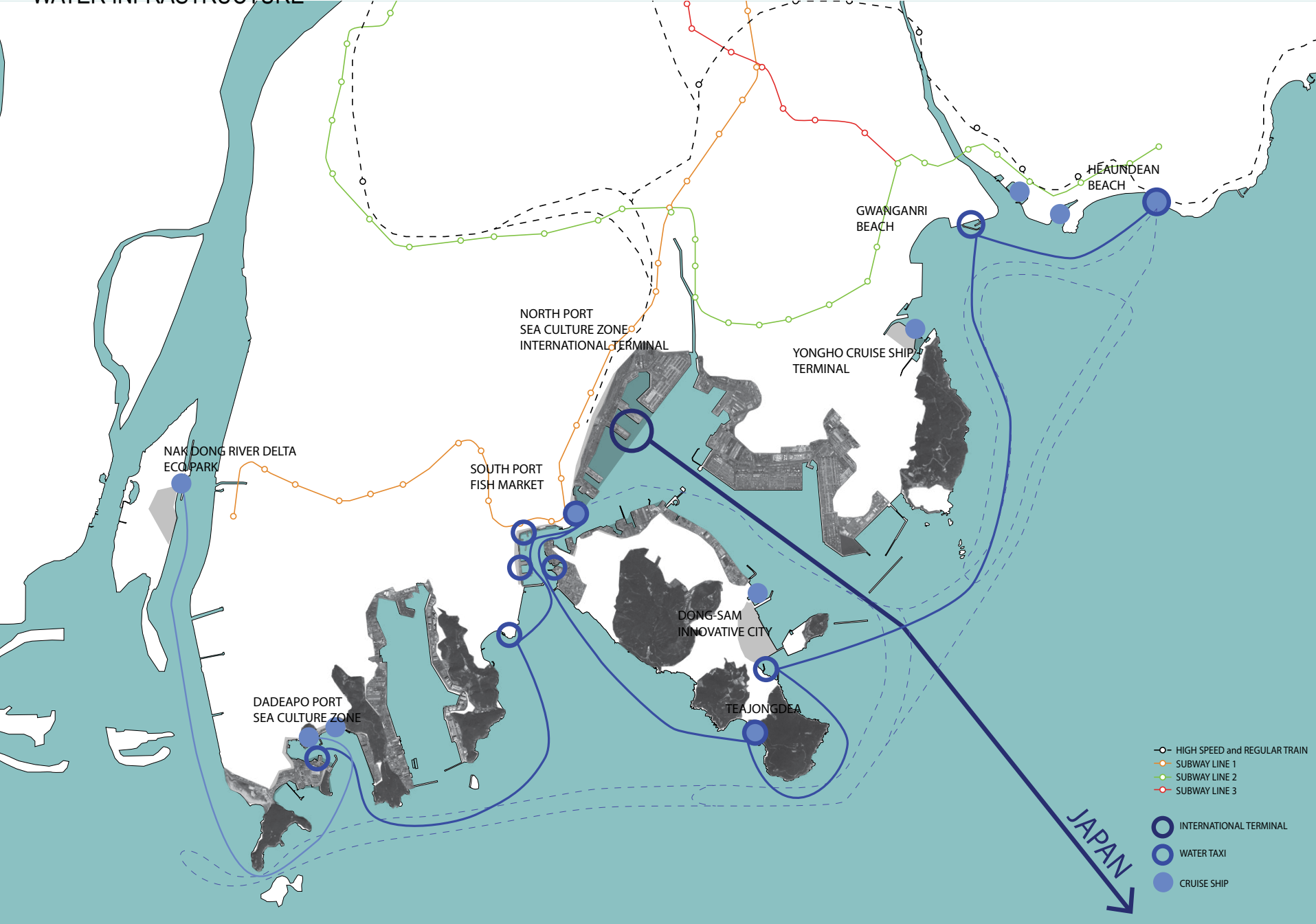
Hard Edge : there are two industrial ports and two fishing ports.

Soft Edge : There are steep mountains and four beaches.

Even though the mountains are included in soft edge, the steep slope of mountains causes people hard to access to waterfront area.

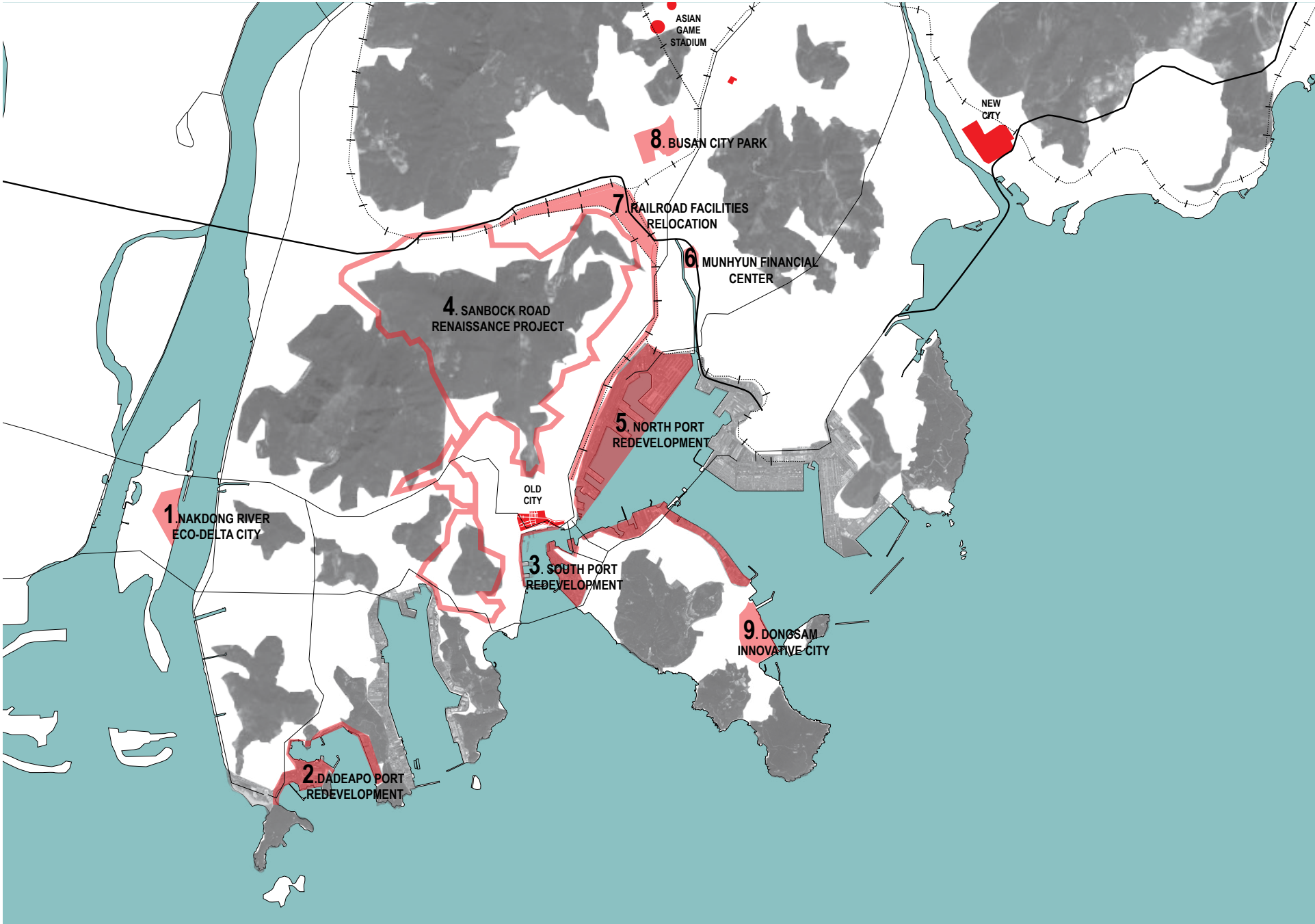


WATER INFRASTRUCTURE



The issue is hard accessibility to waterfront area. One main reason is a lot of ports and industries occupied the waterfront area. However, there is a development that port area change to accessible waterfront area. Moreover, steep mountains are hard to access waterfront area. Lastly, ground transportation is limited in landside. To resolve these problems, I suggest the water infrastructure to connect among waterfront areas. There is an international terminal to go Japan, and some cruise ship terminals. The water taxi system help a movement between old city and new city. It generates active energy to on-going development projects such as Dongsam innovative city, Dadeapo port, and Nackdon eco delta city.

NEW DEVELOPMENT PROJECTS



There are diverse on-going or planned developments in Busan. Three projects such as Dadeapo port, South port, and North port are to revitalize industrial port to active waterfront areas. Sanbock road renaissance project is intervention around Sanbock road, which is located on a mountain. Moreover, a large-scale park will be constructed.

1.Nakdong river eco-delta city



2.Dadeapo port redevelopment



3.South port redevelopment



8.Busan city park



4.Sanbock renaissance project



5.North port redevelopment



6.Munhyun financial center





Existing urban fabric

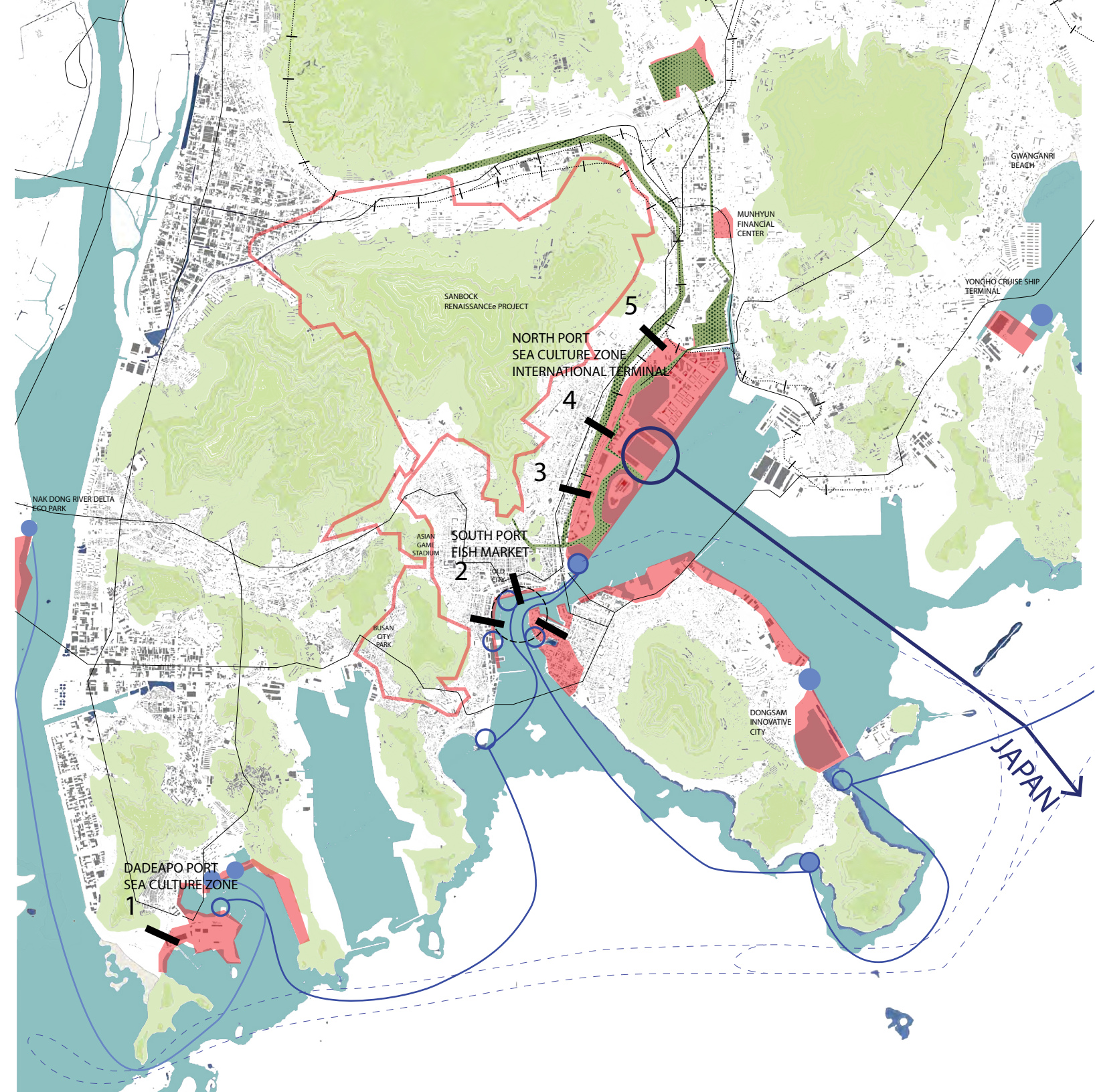


New development



Stitching
between existing urban fabric and new
development

I suggest five stitching point to connect existing urban fabric and planned development. First one is Deadeapo port area. Second one is South port area. The other three are between Sanbock road renaissance project and North port development. These areas are connected to green network plan.



1. DAEAPO PORT REDEVELOPMENT



Existing Dadeapo Port Area
1. Residential blocks - Industrial port
2. Existn barrier : 7-8 m elevation difference



Dadeapo Port Area Development Plan
1. Residential blocks - sea culture zone
2. Proposal : the bridge that can people to access waterfront area



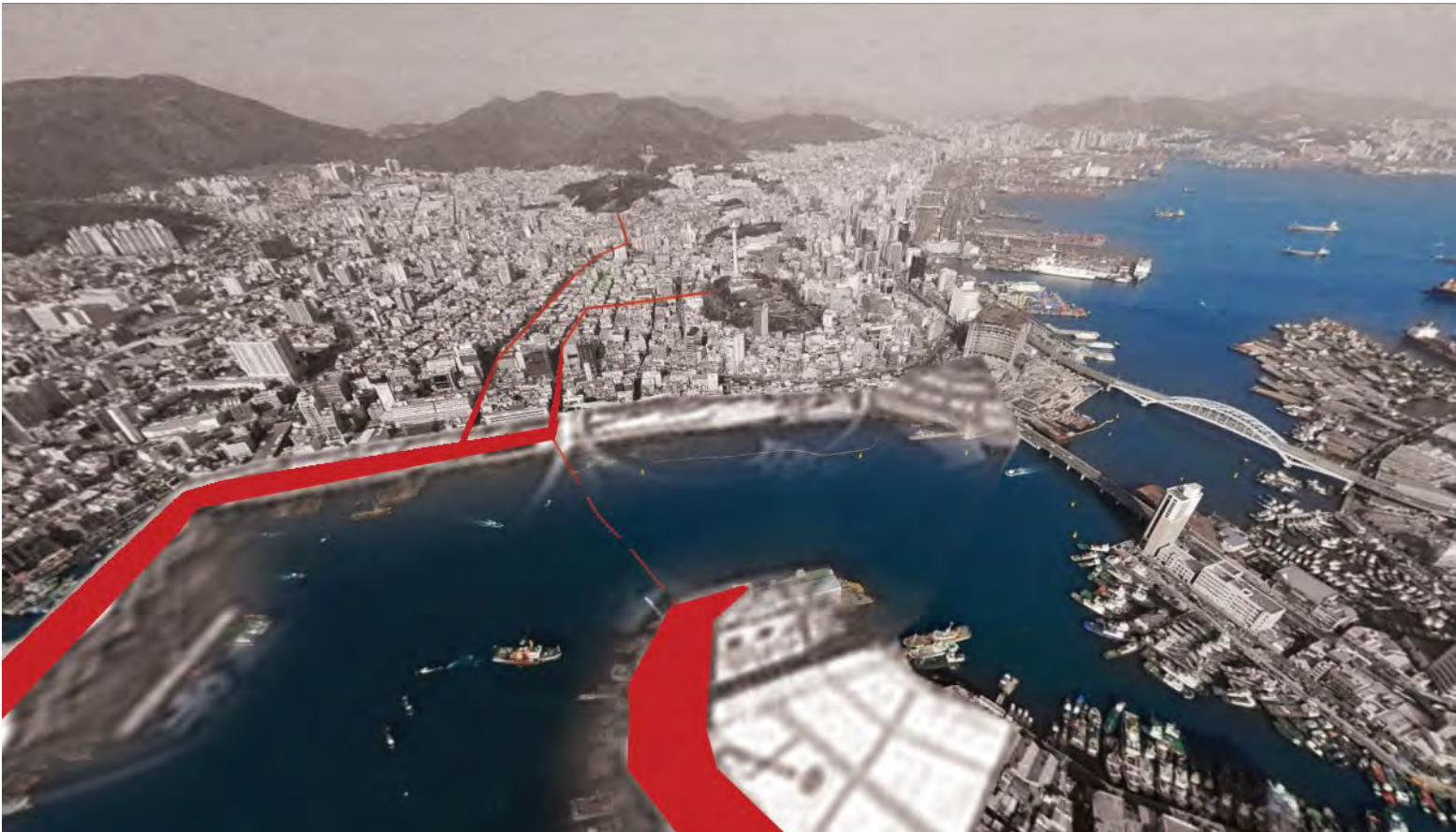
2. SOUTH PORT REDEVELOPMENT



Existing South Port Area
1.Old City Downtwon - Fishing port + Industial use
2.Existing barrier : narrow and dirty streetscape



South Port Area Development Plan
1.Old City downtown - Tourism fish market +Modern history cultural town
2.Proposal : clean and pavement street and connection the green space and waterfront area.



3. NORTH PORT REDEVELOPMENT

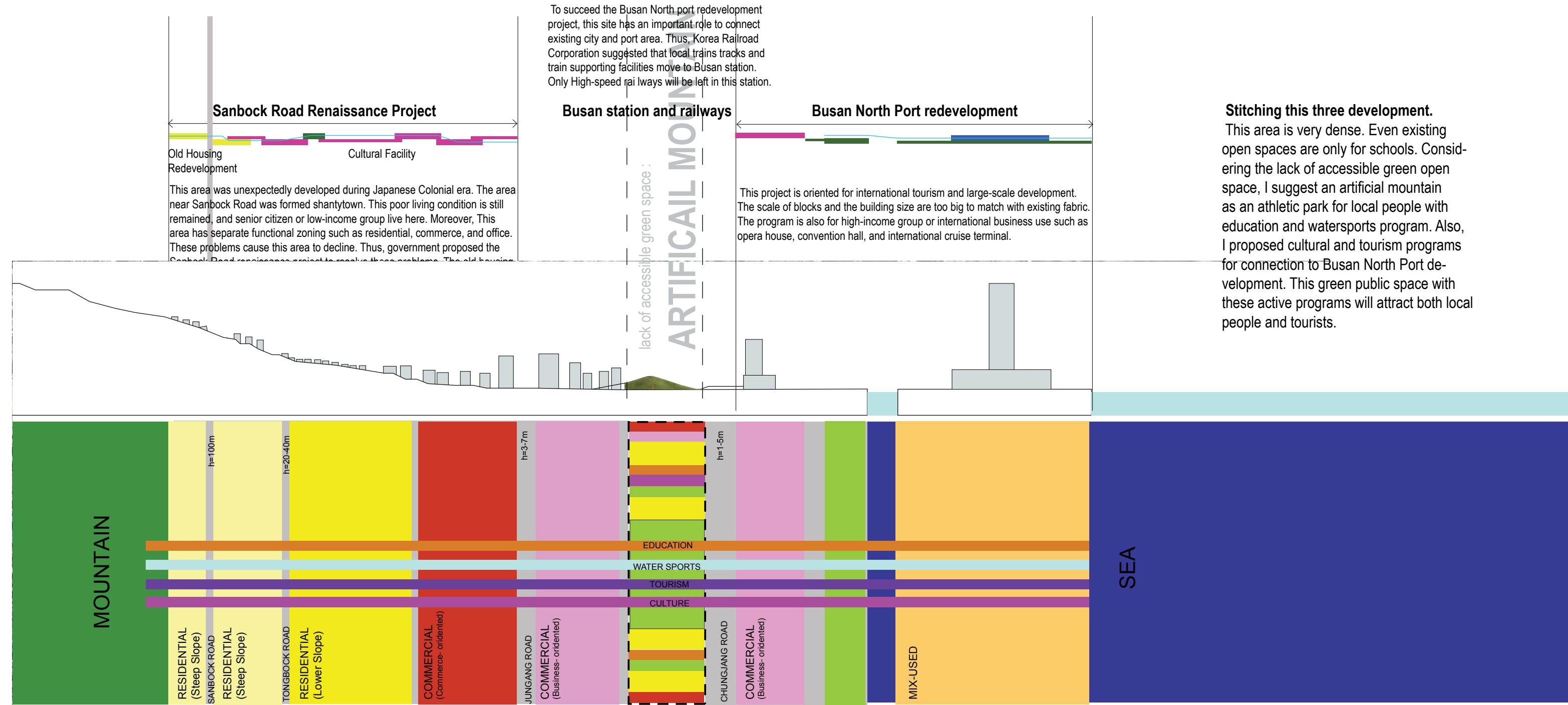


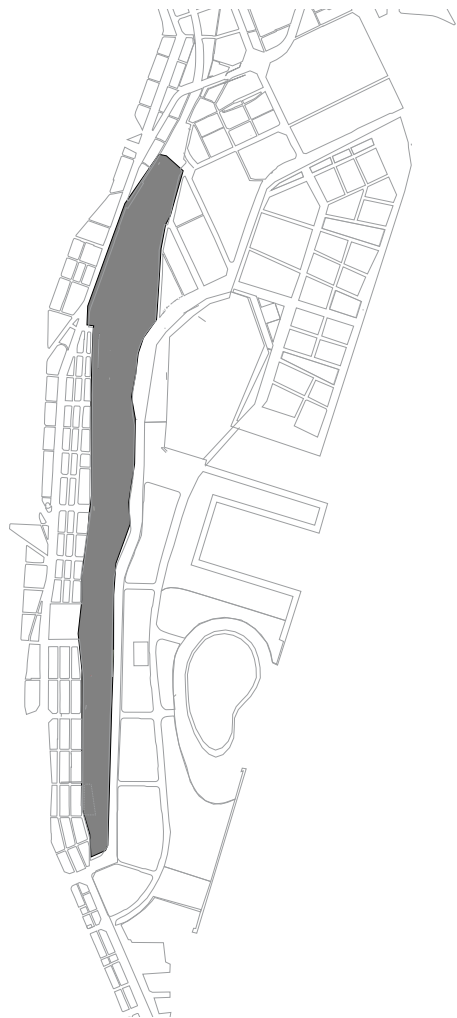
Existing North Port Area
1.Modern City - Industiral Port
2.Existing barrier : railway tracks



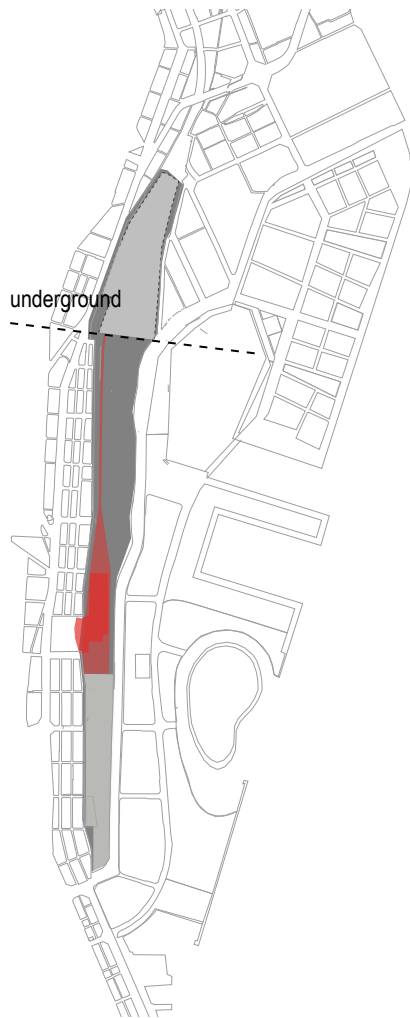
North Port Area Development Plan
1.Modern city with Sanbock Road Reniassance project that is oriented small scale intervention for local people - North Port project that is oriented large scale development: Opera house + Convention center + Office + International cruise terminal
2.Proposal : atheletic park for residents and midium density housing



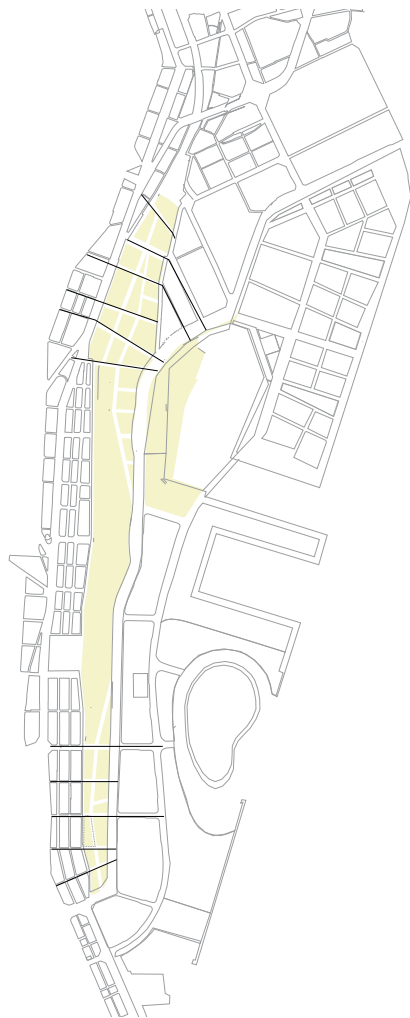




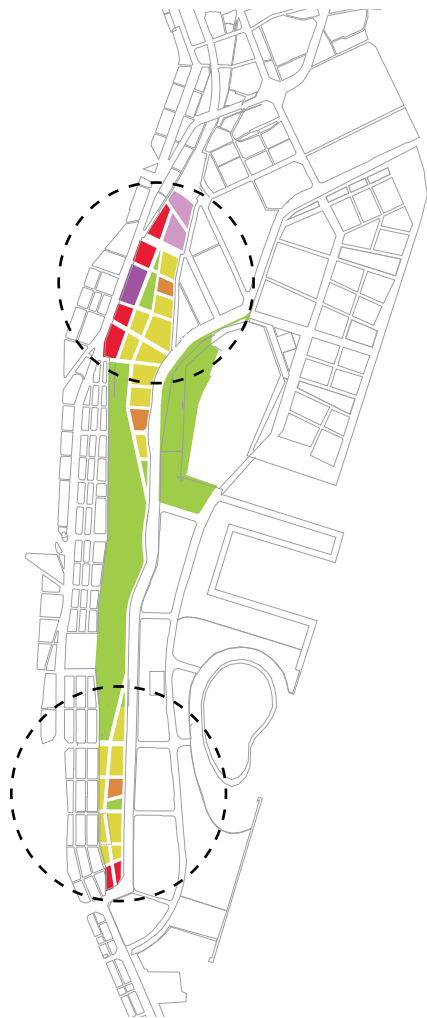
As a barrier between existing urban fabric and new development, there are rail tracks. There are high-speed rail tracks, local train tracks and train supporting facilities.



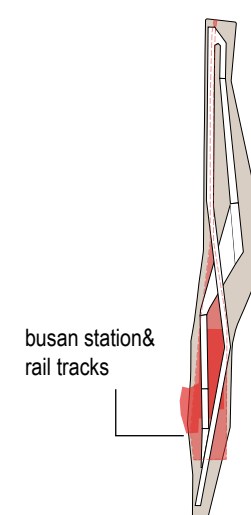
According to Korea railroad corporation, the local train tracks and train supporting facilities will be moved to Bujun station. Only high-speed rail tracks will be left. At the point, the train goes underground.



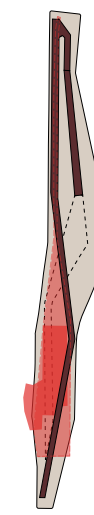
To resolve scale difference between existing urban block and new development block, the area that does not effected by rail tracks follow existing urban block size.



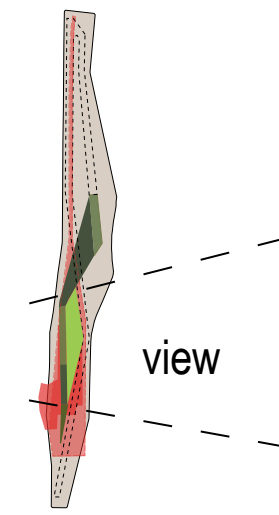
Two regions on the edge are mainly housings. I propsoed a green open space and a school in center area of housing blocks.



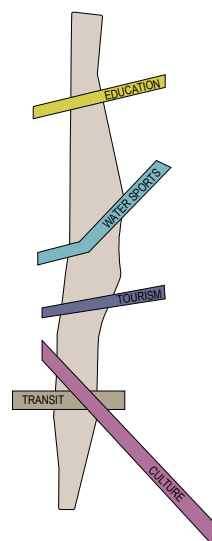
Athletic park for residents



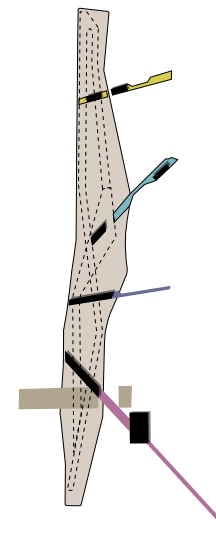
Hard-scape: Jogging and bike lanes



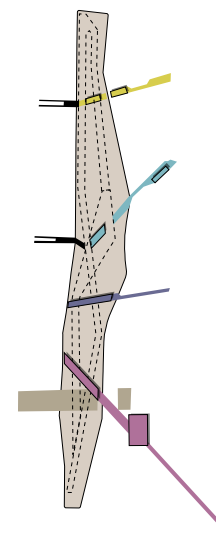
Soft-scape: Green landscape



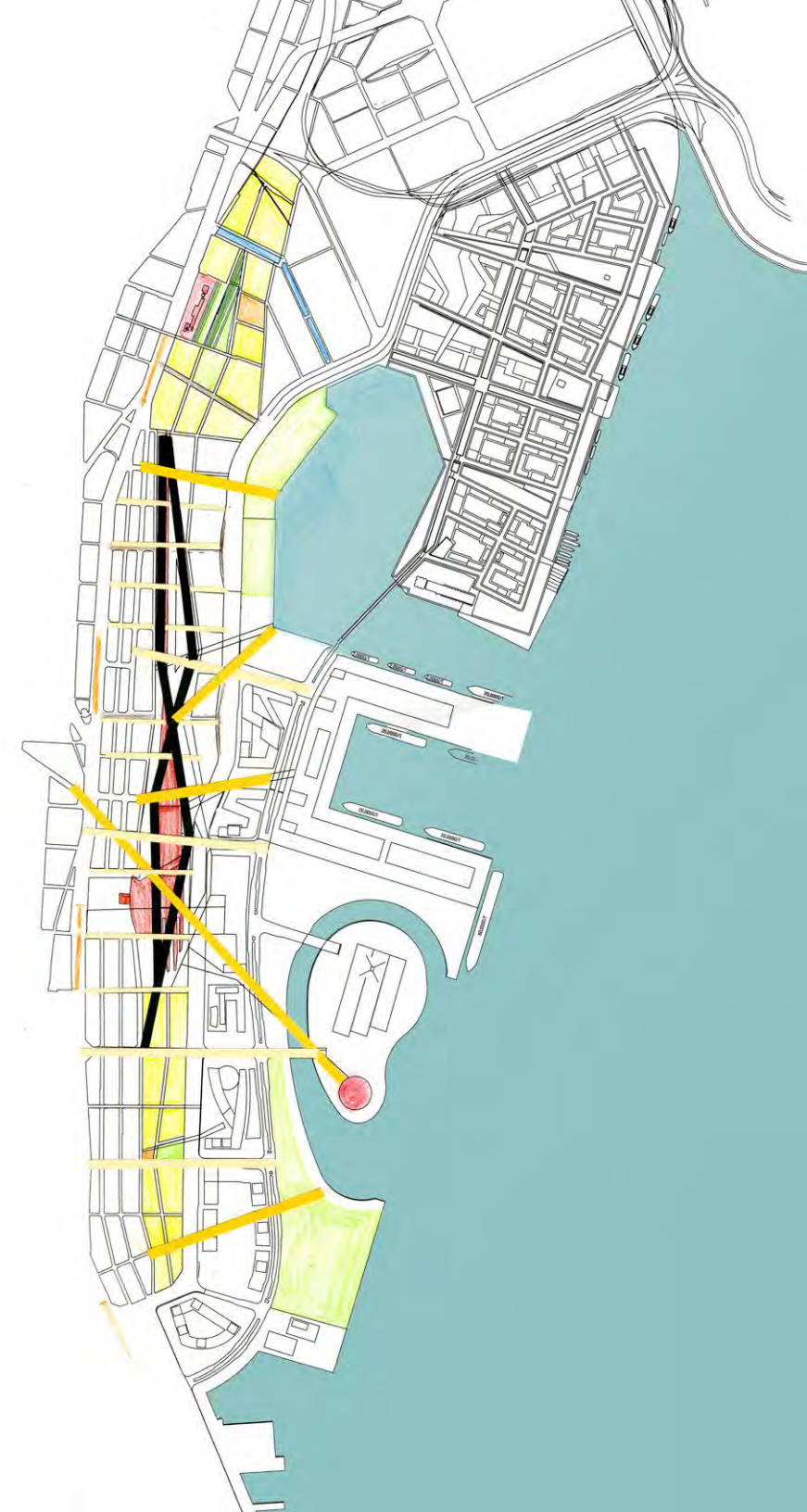
Program:
Education, Water sports,
Tourism, Culture, transit

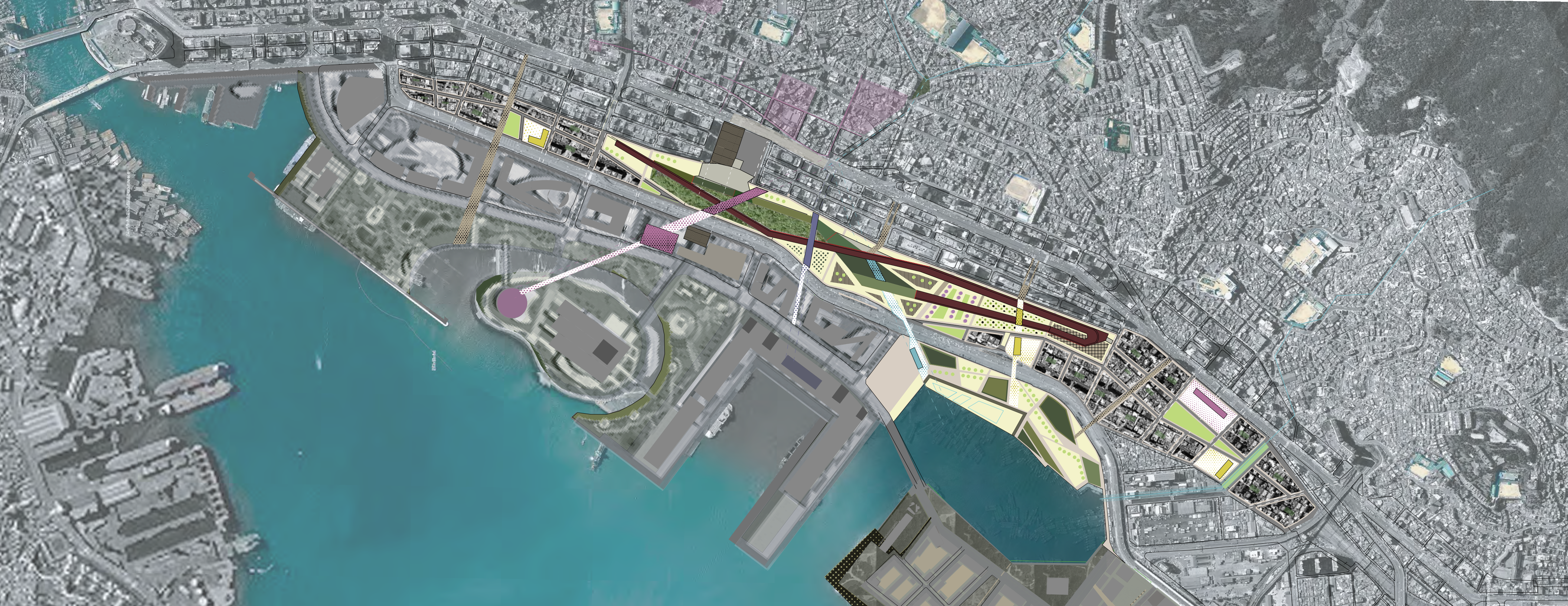


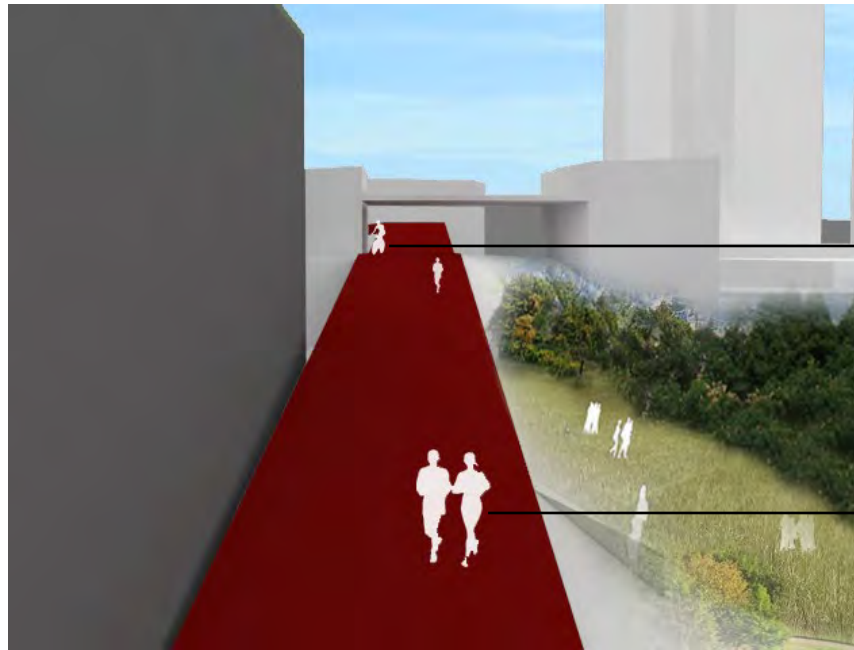
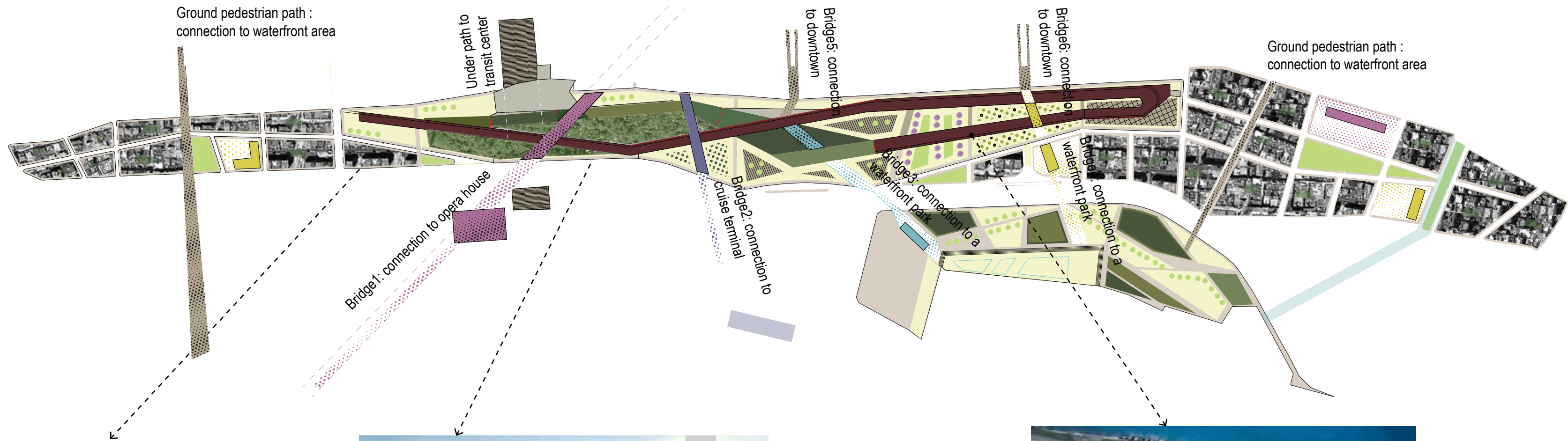
Buildings:
Library, School, Swimming pool,
Spa, Youth Hostel, Information
center, Theater, Gallery, Transit



Bridge:
connection for jogging lane and library
connection for green landscape and
swimming pool







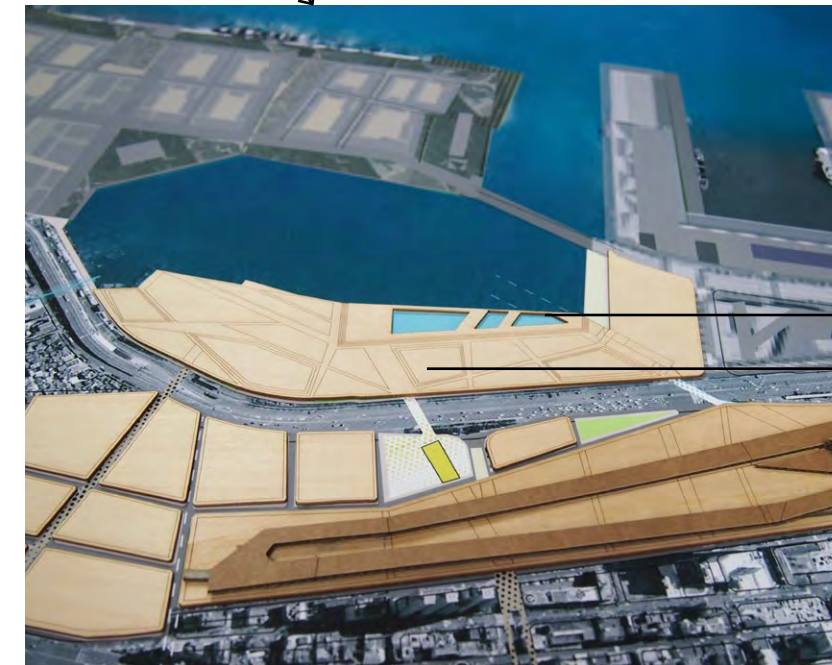
bike lane

jogging tracks



convention center

public transit transfer center



outdoor swimming pool

Green space for local people